

CLAIMS

What is claimed is:

1. A method of recording data, the method comprising:
recording the data on an optical disc that is rotating at a predetermined constant angular velocity;
determining whether a data recording error occurs; and
if it is determined that the data recording error has occurred, rotating the optical disc at an adjusted constant angular velocity which is lower than the predetermined constant angular velocity, and recording the data on the optical disc that is rotating at the adjusted constant angular velocity.
2. The method of claim 1, further comprising:
determining whether the data recording error occurs while the optical disc is rotated at the adjusted constant angular velocity, and if the data recording error is determined to exist, rotating the optical disk at a constant angular velocity that is lower than the adjusted constant angular velocity, and recording the data on the optical disc.
3. The method of claim 2, further comprising repeatedly determining whether the data recording error occurs while the optical disk is rotating.
4. The method of claim 3, further comprising rotating the optical disc at a lower constant angular velocity whenever the data recording error is detected.
5. The method of claim 1, wherein the adjusted constant angular velocity is one step lower than the predetermined constant angular velocity.
6. The method of claim 1, wherein the adjusted constant angular velocity is two steps lower than the predetermined constant angular velocity, according to an extent of the data recording error.
7. The method of claim 1, further comprising determining whether the data recoding error occurs due to a defect of the optical disc.

8. The method of claim 7, wherein the determining whether the data recoding error occurs due to the defect of the optical disc is accomplished using at least one of a focus error signal, a tracking error signal, and an ATIP sync signal.

9. A method of reproducing data, the method comprising:
reproducing the data from an optical disc that is rotating at a predetermined constant angular velocity;
determining whether a data reproduction error occurs; and
if it is determined that the data reproduction error has occurred, rotating the optical disc at an adjusted constant angular velocity which is lower than the predetermined constant angular velocity, and reproducing the data from the optical disc.

10. The method of claim 9, further comprising:
determining whether a data reproduction error occurs while the optical disc is rotated at the adjusted constant angular velocity, and if the data reproduction error is determined to exist, rotating the optical disc at a constant angular velocity which is lower than the predetermined constant angular velocity, and reproducing the data from the optical disc.

11. The method of claim 9, further comprising repeatedly determining whether the data reproduction error occurs while the optical disk is rotating.

12. The method of claim 11, further comprising rotating the optical disc at a lower constant angular velocity whenever the data reproduction error is detected.

13. The method of claim 9, wherein the adjusted constant angular velocity is one step lower than the predetermined constant angular velocity.

14. The method of claim 9, wherein the adjusted constant angular velocity is two step lower than the predetermined constant angular velocity, according to an extent of the data reproduction error.

15. The method of claim 9, further comprising determining whether the data reproduction error occurs due to a defect of the optical disc.

16. The method of claim 15, further comprising using at least one of a focus error signal, a tracking error signal, and an ATIP sync signal to determine whether the data reproduction error occurs due to a defect of the optical disc.

17. An apparatus for recording data, the apparatus comprising:
a motor driver which controls a motor which rotates an optical disc;
an optical pickup which irradiates light onto the optical disc, detects the light reflected from the optical disc, and outputs a radio frequency signal corresponding to the reflected light;
a radio frequency signal processor which, in response to the radio frequency signal, generates and outputs a recording error signal that indicates whether a data recording error occurs; and
a controller which, in response to the recording error signal, determines whether the data recording error occurs, and if it is determined that the data recording error has occurred, controls the motor driver to rotate the optical disc at a constant angular velocity which is lower than a predetermined constant angular velocity.

18. The apparatus of claim 17, wherein the controller controls the motor driver to lower the constant angular velocity at which the optical disk is rotated until the data recording error does not occur.

19. The apparatus of claim 18, wherein if it is determined that the data recording error has occurred, the controller controls the motor driver to rotate the optical disc at a constant angular velocity which is one step lower than the predetermined constant angular velocity.

20. The apparatus of claim 18, wherein if it is determined that the data recording error has occurred, the controller controls the motor driver to rotate the optical disc at a constant angular velocity which is two steps lower than the predetermined constant angular velocity, according to an extent of the data recording error.

21. The apparatus of claim 17, wherein the controller determines whether the data recording error occurs due to a defect of the optical disc.

22. The apparatus of claim 21, wherein the controller determines whether the data recording error occurs due to the defect of the optical disc using at least one of a focus error signal, a tracking error signal, and an ATIP sync signal which are output from the radio frequency signal processor.

23. The apparatus of claim 22, wherein the controller determines the data recording error occurs when a value of the focus error signal or the tracking error signal exceeds a predetermined range, or errors occur in at least a predetermined number of ATIP sync signals to be periodically input.

24. The apparatus of claim 22, wherein the controller divides the value of the focus error signal or the tracking error signal into a plurality of ranges, determines in which of the ranges the recording error belongs, and determines to what extent the constant angular velocity is to be lowered according to the magnitude of the value of the focus error signal or the tracking error signal.

25. An apparatus for reproducing data, the apparatus comprising:
a motor driver which controls a motor which rotates an optical disc;
an optical pickup which irradiates light onto the optical disc, detects the light reflected from the optical disc, and outputs a radio frequency signal corresponding to the reflected light;
a radio frequency signal processor which, in response to the radio frequency signal, generates and outputs a reproduction error signal that indicates whether a data reproduction error occurs; and
a controller which, in response to the reproduction error signal, determines whether the data reproduction error occurs, and if it is determined that the data reproduction error has occurred, controls the motor driver to rotate the optical disc at a constant angular velocity which is lower than a predetermined constant angular velocity.

26. The apparatus of claim 25, wherein the controller controls the motor driver to lower the constant angular velocity at which the optical disc is rotated until the data reproduction error does not occur.

27. The apparatus of claim 26, wherein if it is determined that the data reproduction error has occurred, the controller controls the motor driver to rotate the optical disc at a constant angular velocity which is one step lower than the predetermined constant angular velocity.

28. The apparatus of claim 26, wherein if it is determined that the data reproduction error has occurred, the controller controls the motor driver to rotate the optical disc at a constant angular velocity which is two steps lower than the predetermined constant angular velocity, according to an extent of the data reproduction error.

29. The apparatus of claim 25, wherein the controller determines whether the data reproduction error occurs due to a defect of the optical disc.

30. The apparatus of claim 26, wherein the controller determines whether the data reproduction error occurs due to the defect of the optical disc using at least one of a focus error signal, a tracking error signal, and an ATIP sync signal which are output from the radio frequency signal processor.

31. The apparatus of claim 30, wherein the controller determines the data recording error occurs when a value of the focus error signal or the tracking error signal exceeds a predetermined range, or errors occur in at least a predetermined number or more of ATIP sync signals to be periodically input.

32. The apparatus of claim 30, wherein the controller divides the value of the focus error signal or the tracking error signal into a plurality of ranges, determines in which of the ranges the recording error belongs, and determines to what extent the constant angular velocity is to be lowered according to the magnitude of the value of the focus error signal or the tracking error signal.

33. A method of recording and/or reproducing data, the method comprising:

at least one of,
recording the data on an optical disc that is rotating at a predetermined constant angular velocity, and
reproducing the data from an optical disc that is rotating at a predetermined constant angular velocity;
determining whether at least one of a data recording error or a data reproduction error occurs;
if it is determined that the data recording error has occurred, rotating the optical disc at an adjusted constant angular velocity which is lower than the predetermined constant angular velocity, and recording the data on the optical disc that is rotating at the adjusted constant angular velocity; and
if it is determined that the data reproduction error has occurred, rotating the optical disc at an adjusted constant angular velocity which is lower than the predetermined constant angular velocity, and reproducing the data from the optical disc that is rotating at the adjusted constant angular velocity.

34. The method of claim 33, further comprising:
determining whether at least one of the data recording error or the data reproduction error occurs while the optical disc is rotated at the adjusted constant angular velocity;
if the data recording error is determined to exist, rotating the optical disk at a constant angular velocity that is lower than the adjusted constant angular velocity, and recording the data on the optical disc; and
if the data reproducing error is determined to exist, rotating the optical disk at a constant angular velocity that is lower than the adjusted constant angular velocity, and reproducing the data from the optical disc.

35. The method of claim 34, further comprising repeatedly determining whether at least one of the data recording error or the data reproducing error occurs while the optical disk is rotating.

36. The method of claim 35, further comprising rotating the optical disc at a lower constant angular velocity whenever at least one of the data recording error or the data reproducing error is detected.